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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,625	06/12/2006	Chunguo Feng	034257R002	2786

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EXAMINER	
BERTHEAUD, PETER JOHN	

ART UNIT	PAPER NUMBER
3746	

MAIL DATE	DELIVERY MODE
10/21/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,625	FENG ET AL.	
	Examiner	Art Unit	
	PETER J. BERTHEAUD	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 5-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *9-24* is/are allowed.

6)☒ Claim(s) *1 and 5-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/17/2009 has been entered. It should be noted that claims 1 and 5-8 have been amended, claims 2-4 have been cancelled, and claims 9-24 have been added.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 24. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoblitzelle 3,031,970 in view of Kottke 6,203,288, and in further view of Russell 4,687,054.

Hoblitzelle discloses a reciprocating submersible pump apparatus, comprising a sieve tube (see extension of tube 11 with holes 38 above the top coil 23), a drive and a pump (32), the whole apparatus capable of being placed in an underground oil reservoir; wherein the drive consists of a stator (23) having an upper end and a lower end; characterized in that, with an airtight cavity, the upper end of the stator is connected to a lower end of the pump (see chamber 37) through the sieve tube (top end of 11); the pump is connected to an oil tube 52; the stator's lower end is connected to a balancing sieve tube 12, an end plug 14 and an end coupler 13 of the drive serially; wherein the circular inner surface of the stator is made from an alloy (see col. 2, lines 13-19); wherein there is a pump housing H outside a pump cylinder (37) of the pump, forming a circular space between them for sand residue; and a plunger push rod 31 of

the pump is connected to an upper end of a solid shaft of the reciprocating head (18) of the drive through the sieve tube; wherein the oil tube 52 leads to ground surface; and the stator (23) is connected to power terminals (see 82-85) of an overground numerical control unit (see 62). However, Hoblitzelle does not teach the following magnet/core arrangement and supporting guide limitations taught by Kottke.

Kottke teaches a reciprocating submersible pump apparatus, comprising a drive and a pump 13, the whole apparatus capable of being placed in an underground oil reservoir; wherein the drive consists of a stator 52 having an upper end and a lower end and a reciprocating head with iron cores 66 inside the stator 52; the stator and the reciprocating head form a friction couple via supporting guides 15 and the reciprocating head iron cores 66; wherein there are many circular iron core winding groups comprising circular iron cores 54 and circular windings 56 inside a stator frame 52 with the supporting guides 15 capable of being between winding groups (the guides 15 are above and below the winding group, so if there were a plurality, as seen in Hoblitzelle, they would be between); the circular iron cores 54 and the circular windings 56 are arranged next to each other; wherein the reciprocating head's iron cores 66 are circular and around a solid shaft 65 of the reciprocating head with permanent magnets 64 between the circular iron cores 66; wherein the permanent magnets 64 are equally spaced between the reciprocating head's circular iron cores 66; and the magnets 64 have smaller outside diameters than the circular iron cores 66; wherein the stator 52 is connected to power terminals of an over ground numerical control unit (see 60 and col. 12, lines 57-67 - col. 13, lines 1-6); Kottke further teaches a numerical control unit such

that the reciprocating submersible pump apparatus is a numerically controlled reciprocating pump apparatus (see col. 12, line 57 - col. 13 line 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Hoblitzelle by implementing the stator and reciprocating head assembly, specifically the magnet/core arrangement and supporting guides, of Kottke in order to more precisely control the drive of the pump.

Hoblitzelle in view of Kottke discloses the invention as discussed above as well as the supporting guides being circular (see 15 in Kottke), made from alloy and have the circular inside surfaces made from alloy (tube 11, which is the guiding surface, made from alloy in Hoblitzelle; thus making this construction obvious); the supporting guides and have smaller inside diameters than the stator's innermost surface (taught by Kottke). However, Hoblitzelle in view of Kottke does not teach the following seal bushing limitations taught by Russell.

Russell teaches a reciprocating pump apparatus comprising a drive and a pump (350), the whole apparatus capable of being placed in an underground oil reservoir; wherein the drive consists of a stator (see coil assemblies 240, 242, 244, and 246) having an upper end and a lower end and a reciprocating head (linear armature 300). Russell further teaches a seal bushing 222 on circular inside surfaces of circular iron cores (252, 254) and circular windings (240, 242, 244, and 246); this seal bushing 222 is connected to endcovers 212, 218; and all these form an airtight cavity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Hoblitzelle in view of Kottke by implementing seal bushings onto the circular inside surfaces of the iron cores of the stator, as taught by Russell, in order to better seal the stator.

In reference to claim 5, Hoblitzelle in view of Kottke and Russell discloses the claimed invention except for the outer surfaces of the circular iron cores being made from an alloy. It would have been obvious to one of ordinary skill in the art to have the outer surfaces of the circular iron cores being made from an alloy in order to increase the lifetime of the pump by reducing wear. Furthermore, it is well known in the art to use alloys in applications where two elements are in frictional communication (see Hoblitzelle, an alloy is used to make to tube 11); thus making wear an issue. In addition, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (see MPEP 2144.07 - Art Recognized Suitability for an Intended Purpose).

Allowable Subject Matter

5. Claims 9-24 are allowed.

Response to Arguments

6. Applicant's arguments filed 8/17/2009 have been fully considered but they are not persuasive.

7. In response to Applicant's arguments with respect to Claim 1: Claim 1 is now rejected as being unpatentable over Hoblitzelle in view of Kottke, and in further view of Russell. Applicant argues that the references do not teach seal bushings that are

associated with stator framing and connected to end covers, in conjunction with smaller inside diameter supporting guides. Examiner respectfully disagrees. Kottke teaches supporting guides having smaller inside diameters than the stator's innermost diameter; Russell then teaches placing a seal bushing onto the circular inside surfaces of the iron cores of the stator. Therefore, it would have been obvious that in combination the supporting guides could be placed onto the seal bushing, thus giving them a smaller inside diameter than the seal bushing. Thus, Examiner maintains the rejection of Hoblitzelle in view of Kottke, and in further view of Russell.

Applicant goes on to argue that "*it is clear from the teachings of Hobilitzelle and the relied upon teachings of the secondary reference to Kottke that there is specifically avoided the use of supporting guides having an alloy inside surface in favor of the cold flow, dry lubricant guides 15 said to have been obviously positioned inward of the continuous interior surface of the tube in Hobilitzelle.*" Examiner has relied upon Hoblitzelle to teach a contact surface made from alloy in the rejection above (see Hoblitzelle, col. 2, lines 13-19). Due to this teaching it would have been obvious that the supporting guides of Kottke could have an alloy inside surface in order to increase the lifetime of the pump by reducing wear.

Conclusion

8. The prior art made of record in the attached form 892 and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER J. BERTHEAUD whose telephone number is (571)272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

PJB
/Peter J Bertheaud/
Examiner, Art Unit 3746